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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/580,630	05/24/2006	Shinya Takagi	034620-144	4372

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EXAMINER	
TORRES RUIZ, JOHALI ALEJANDRA	
ART UNIT	PAPER NUMBER
2858	
MAIL DATE	DELIVERY MODE
07/06/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/580,630	TAKAGI ET AL.	
	Examiner	Art Unit	
	JOHALI A. TORRES RUIZ	2858	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *31 March 2010*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *24 June 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on March 31, 2010 has been entered.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Drori (U.S. Patent Number 6,501,249) and Nguyen (U.S. Patent Number 5,402,055).

5. Claim 1: Drori teaches a DC power supply apparatus (108); a load device (106) which is connected to said DC power supply apparatus (108); a charging path which is connected to said DC power supply apparatus (108) in parallel with said load device (106), said charging path including a lithium ion battery (102) (Col.3, Lines 57-60 (Col. and a switch (110) that is installed in said charging path in series with said lithium ion battery (102) (Fig.1) and is provided with such function that disconnects said lithium ion battery (102) from both of said DC power supply apparatus (108) and said load device (106) when the cell voltage of said lithium ion battery (102) shows overcharging or over-discharging of said lithium ion battery (102) (Col.4, Lines 46-49) or connects said lithium ion battery (102) to both of said DC power supply apparatus (108) and said load device (106) in a normal state to receive a charging current from said power supply apparatus (108) while said DC power supply apparatus (108) supplies a current to said load device (106) (Col.11, Lines 53-64); and a control circuit (104) that monitors the voltage value of said charging path, and controls said switch (110) when said voltage of said charging path exceeds a specified voltage value during charging (Col.4, Lines 46-49).

Drori teaches the battery (102) can be designed on a variety of materials including NiCd, NiH and Li-ion (Col.3, Lines 57-60) and converting AC current from an electrical socket into appropriate DC current to charge the battery (102) (Col.11, Lines 56-59).

Drori does not explicitly teach a charging current limiting circuit that is connected in series with said lithium ion battery that supplies a charging current of an arbitrary value independent of load fluctuations in said charging path; connecting the lithium ion battery via said charging current limiting circuit so that said charging current limiting circuit supplies said charging current to said lithium ion battery; a control circuit performs a reference voltage value used for setting the charging current of said arbitrary value in said charging current limiting circuit.

Nguyen teaches a charging current limiting circuit (28) that is connected in series with a battery (24) that supplies a charging current of an arbitrary value independent of load fluctuations in a charging path (Col.5, Lines 37-49) which is connected to a DC power supply apparatus (22) in parallel with a load device (32) (Fig.1); a control circuit performs a reference voltage value used for setting the charging current of said arbitrary value in said charging current limiting circuit and connecting the battery (24) via said charging current limiting circuit so that said charging current limiting circuit (28) supplies said charging current to said battery (24) (Col.2, Lines 63-68) (Col.3, Lines 1-9).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have had the teachings of Nguyen in the device of Drori to have limited the output of the AC adapter to a nominal voltage and limited the power consumption to an acceptable level (Col.3, Lines 6-9).

6. Claims 2-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Drori (U.S. Patent Number 6,501,249) and Nguyen (U.S. Patent Number 5,402,055)

as applied to claim 1 above, and further in view of Kaneko (U.S. Patent Number 5,932,990).

7. Claim 2: Drori and Nguyen teach the limitations of claim 1 as discussed above. They do not explicitly teach a plurality of said lithium ion batteries are connected in series, and said power supply system is further provided with a voltage regulation circuit that is connected in parallel with each lithium ion battery of said plurality of series-connected lithium ion batteries, detects a full-charge voltage in each of said lithium ion batteries and bypasses said charging current.

Kaneko teaches a plurality of lithium ion batteries connected in series (Col.4, Lines 32-36) and connected to a charging path which is connected to a DC power supply apparatus (4) in parallel with a load device (3) (Fig.1), and a power supply system is further provided with a voltage regulation circuit (13) that is connected in parallel with each lithium ion battery of said plurality of series-connected lithium ion batteries (Col.4, Lines 64-67) (Col.5, Lines 1-3), detects a full-charge voltage in each of said lithium ion batteries and bypasses said charging current (Col.4, Lines 55-63).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have had the teachings of Kaneko in the combination of Drori and Nguyen to have permitted uniformed charging of the batteries (Col.4, Lines 1-4).

8. Claim 3: Drori teaches a DC power supply apparatus (108); a load device (106) which is connected to said DC power supply apparatus (108); a charging path which is connected to said DC power supply apparatus (108) in parallel with said load device (106), said charging path including a lithium ion battery (102) (Col.3, Lines 57-60 (Col.

and a switch (110) that is installed in said charging path in series with said lithium ion battery (102) and is provided with such function that disconnects said lithium ion battery (102) from both of said DC power supply apparatus (108) and said load device (106) when the cell voltage of said lithium ion battery (102) shows overcharging or over-discharging of said lithium ion battery (102) (Col.4, Lines 46-49) or connects said lithium ion battery (102) to both of said DC power supply apparatus (108) and said load device (106) in a normal state to receive a charging current from said power supply apparatus (108) while said DC power supply apparatus (108) supplies a current to said load devices (106) (Col.11, Lines 53-64); and a control circuit (104) that monitors the voltage value of said charging path, and controls said switch (110) when said voltage of said charging path exceeds a specified voltage value during charging (Col.4, Lines 46-49). Drori teaches the battery (102) can be designed on a variety of materials including NiCd, NiH and Li-ion (Col.3, Lines 57-60) and converting AC current from an electrical socket into appropriate DC current to charge the battery (102) (Col.11, Lines 56-59).

Drori does not explicitly teach a charging current limiting circuit that is connected in series with said lithium ion battery that supplies a charging current of an arbitrary value independent of load fluctuations in said charging path; connecting the lithium ion battery via said charging current limiting circuit so that said charging current limiting circuit supplies said charging current to said lithium ion battery; a control circuit performs a reference voltage value used for setting the charging current of said arbitrary value in said charging current limiting circuit.

Nguyen teaches a charging current limiting circuit (28) that is connected in series with a battery (24) that supplies a charging current of an arbitrary value independent of load fluctuations in a charging path (Col.5, Lines 37-49); a control circuit performs a reference voltage value used for setting the charging current of said arbitrary value in said charging current limiting circuit and connecting the battery (24) via said charging current limiting circuit so that said charging current limiting circuit (28) supplies said charging current to said battery (24) (Col.2, Lines 63-68) (Col.3, Lines 1-9).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have had the teachings of Nguyen in the device of Drori to have limited the output of the AC adapter to a nominal voltage and limited the power consumption to an acceptable level (Col.3, Lines 6-9).

Drori and Nguyen do not explicitly teach a plurality of said lithium ion batteries are connected in series, and said power supply system is further provided with a voltage regulation circuit that is connected in parallel with each lithium ion battery of said plurality of series-connected lithium ion batteries, detects a full-charge voltage in each of said lithium ion batteries and bypasses said charging current; a control circuit performs a full-charge reference voltage setting in said voltage regulation circuit.

Kaneko teaches a plurality of lithium ion batteries are connected in series (Col.4, Lines 32-36) and connected to a charging path which is connected to a DC power supply apparatus (4) in parallel with a load device (3), and a power supply system is further provided with a voltage regulation circuit (13) that is connected in parallel with each lithium ion battery of said plurality of series-connected lithium ion batteries (Col.4,

Lines 64-67) (Col.5, Lines 1-3), detects a full-charge voltage in each of said lithium ion batteries and bypasses said charging current (Col.4, Lines 55-63); and a control circuit performs a full-charge reference voltage setting in said voltage regulation circuit (Col.2, Lines 43-51).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have had the teachings of Kaneko in the combination of Drori and Nguyen to have permitted uniformed charging of the batteries (Col.4, Lines 1-4).

Response to Arguments

8. Applicant's arguments with respect to claims 1-3 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to JOHALI A. TORRES RUIZ whose telephone number is (571)270-1262. The examiner can normally be reached on M- F 9:30am-6pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Assouad can be reached on (571) 272-2210. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/J. A. T./
Examiner, Art Unit 2858
/Patrick J Assouad/

Supervisory Patent Examiner, Art Unit 2858